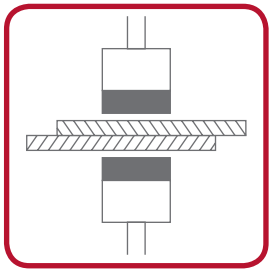
ROLAND ELECTRONIC

Structure Testing System I20

THE ROLAND PLUS

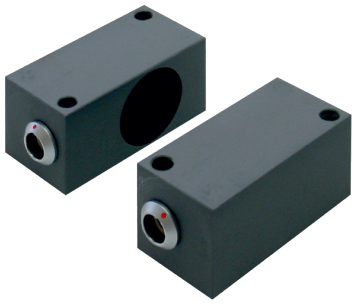
- All common Fieldbus standards
- Two types of enclosure available
- Additional application possibilities

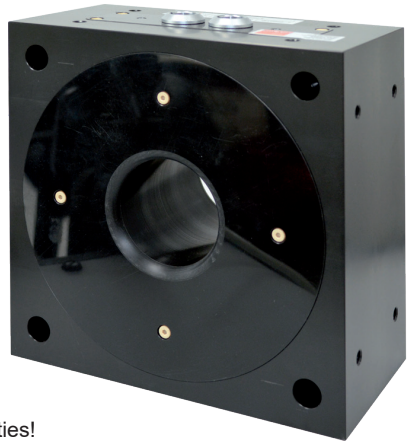
Structure Testing System
for ferrous and non-ferrous material
Inductive principles



Non-contact structure and sorting inspection of FE and Non-ferrous material. Additional applications through special sensors: parts control, material detection and Double Sheet Control. * Up to four sensors can be connected to one device (4-channel version)

- Settings by Teach-In procedure
- Programmable for 256 different parts / dimensions
- Fast and convenient setup of new parts with static or dynamic Teach-In
- Working frequency can be selected in 11 steps between 8 ... 25000 Hz
- Up to 1000 parts / minute
- Operating voltage and sensor distance monitoring
- Integrated fieldbus interface with process and parameter interface





* Ask for brochures to the additional range of possibilities!

STRUCTURE TESTING SYSTEM I20

Description:

Flexible Manufacturing Systems in the sheet processing industry require reliable Double Sheet Control systems in order to protect presses and other sheet processing machines against damage caused by feeding multiple sheets.

The Double Sheet Detector R1000 I20 was specifically developed for this technical environment. Depending on the application (type of material, thickness, sensor gap) the I20 can be used with up to four pairs of sensors. The reliable function of the Double Sheet Detector depends therefore most importantly on the selection of the correct sensors and the mounting of the sensors.

The I20 is based on the product platform R1000 and consists in the standard version of three components:
- a control unit
- one pair of sensors (transmitter and receiver)
- one pair of sensor cables

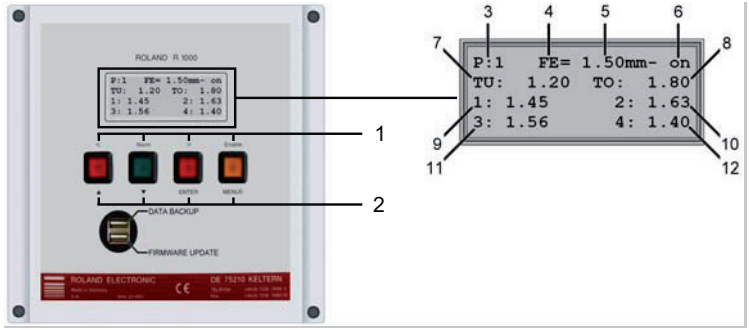
Function:

The function of the sensor system is based on the measurement of eddy currents. The sensor system consists of a transmitter and a receiver. The transmitter generates an electro magnetic field, which generates eddy currents in the target.
The eddy current loss in the sheet dampens the electro magnetic field. These losses are measured in the receiver and are a measure of the sheet thickness.

Technical Data:

Operating voltage:	24 V DC +6 V / -2 V
Power consumption:	< 20 W
Class of protection:	IP 65
Ambient temperature:	0°C - 50° C during operation
Weight:	approx. 1.6 kg (3.5 lbs)
Signal inputs:	potential free, 24 V DC with common reference
Switching outputs	
0- 1- 2 sheet:	opto coupler, high side switching
Switching capacity:	max. 50 VAC, 0.15 A, 0.15 W

Frontal view of the I20 with enlarged display detail:



1	LED functions
2	Pushbutton functions
3	Program number
4	Type of material
5	Nominal thickness
6	State of measurement
7	Lower limit value
8	Upper limit value
9	Measured value of sensor 1
10	Measured value of sensor 2
11	Measured value of sensor 3
12	Measured value of sensor 4

The measurement results of the pairs of sensor 1 … 4 are indicated only for pairs of sensor set active

Control unit I20 with opto coupler interface:

I20-2-O-S-FP
A B C D E

A	Type of unit	I20	
B	Number of Sensors	2 4	Up to 2 sensors Up to 4 sensors
C	Outputs	O	Optocoupler
D	Connection	S	Cable pluggable
E	Enclosure version	FP	

Control unit I20 with Fieldbus interface:

I20-2-xx-S-FP
A B C D E

A	Type of unit	I20	
B	Number of sensors	2 4	Up to 2 sensors Up to 4 sensors
C	Fieldbus code	XX	Bus code
D	Connection	S	Cables pluggable
E	Enclosure version	FP	Front panel mount

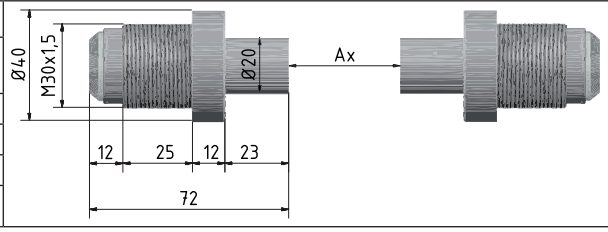
XX Bus Code
PR = Profibus-DP; CN = ControlNet;
DNT = DeviceNet; IN = Interbus-S;
PN = Profinet IO; CP = CanOpen; CC = CC-Link;
EN = EtherNet/IP; ET = EtherCAT;

STRUCTURE TESTING SYSTEM I20

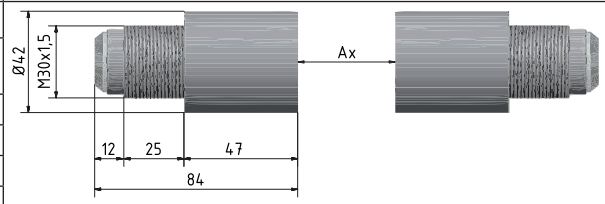
Sensors:

For performing Double Sheet Detection with I20 the following sensor pairs are required: IS/IE20-30GS, IS/IE42-30GS or ISQ42S / IEQ42S. To perform part inspection, material inspection, or hardness inspection the sensor pair ISQ160S / IEQ160S has to be used.

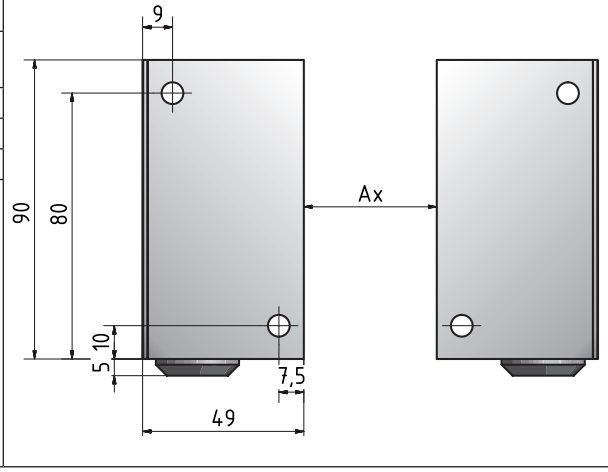
Sensor pair IS20-30GS / IE20-30GSGS:

Technical Data		
Application:	Double Sheet Detection	
Sheet thickness:	0.05 - 4 mm for steel 0.05 - 5 mm for aluminum (LW 20 - 30 MS/m) 0.2 - 5 mm for austenitic stainless steel	at nominal sensor distance Ax (min. / max.) 20 (10 —40) mm 20 (10 —40) mm 20 (10 —40) mm
Sensor distance:	see sensor diagrams in the manual	
Measurement principle:	Eddy current	
Protection class:	IP54	
Weight:	approx. 0.25 kg (0.55 lbs)	
Material of enclosure:	stainless steel / brass, nickel plated	
Sensor cable:	Quick disconnect	

Sensor pair IS42-30GS / IE42-30GS

Technical Data		
Application:	Double Sheet Detection	
Sheet thickness:	0.15 - 8 mm for steel 0.1 - 16 mm for aluminum (LW 20 - 30 MS/m) 0.5 - 16 mm for austenitic stainless steel	at nominal sensor distance Ax (min. / max.) 40 (20 —80) mm 40 (20 —80) mm 40 (20 —80) mm
Sensor distance:	see sensor diagrams in the manual	
Measurement principle:	Eddy current	
Protection class:	IP54	
Weight:	approx. 0.45 kg (1 lbs)	
Material of enclosure:	stainless steel / brass, nickel plated	
Sensor cable:	Quick disconnect	

Sensor pair ISQ42S / IEQ42S or sensor pair ISQ42FS / IEQ42FS

Technical Data		
Application:	Double Sheet Detection	
Sheet thickness:	0.15 - 8 mm for steel 0.1 - 16 mm for aluminum (LW 20 -30 MS/m): 0.4 - 16 mm for austenitic stainless steel	at nominal sensor distance Ax (min. / max.) 40 (20 - 80) mm 40 (20 - 80) mm 40 (20 - 80) mm
Sensor distance:	see sensor diagrams in the manual	
Measurement principle:	Eddy current	
Protection class:	IP54	
Weight:	approx. 0.50 kg (1.1 lbs)	
Material of enclosure:	plastic	
Sensor cable:	ISQ / IEQ42S: Quick disconnect ISQ / IEQ42FS: 0.2 m cable firmly	

STRUCTURE TESTING SYSTEM I20

Versions of control unit I20, Fieldbus included

I20-2-O-S*	2 channel unit, for max. 2 sensor pairs of same type	Control unit in wall mount enclosure, data backup via USB port
I20-4-O-S*	4 channel unit, for max. 4 sensor pairs of same type	
* also available as front panel mounting, e.g. I20-2-O-S-**FP**		

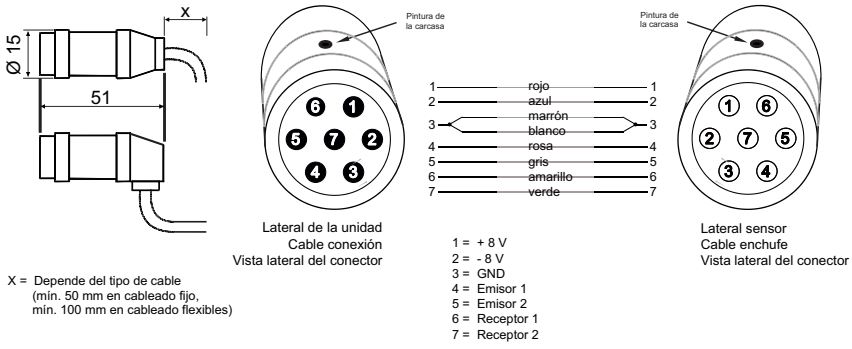
Profibus-DP		
I20-2-PR-S**	2 channel unit, for max. 2 sensor pairs of same type	Control unit in wall mount enclosure, data backup via Profibus-DP or USB port
I20-4-PR-S**	4 channel unit, for max. 4 sensor pairs of same type	
** also available as front panel mounting, e.g. I20-2-PR-S-**FP**		

Other available fieldbus options:
CN = ControlNet; DNT = DeviceNet; IN = Interbus; CP = CanOpen; PN = ProfiNet; CC = CC-Link;EN = EtherNet; ET = EtherCAT

Sensors:

Order information	Description
IS20-30GS	Sensor transmitter 20/40 mm Ø, without cable with sensor plug for sensor cable connection, sensor with thread sleeve M30 x 1.5, 2 flat nuts M30
IE20-30GS	Sensor receiver 20/40 mm Ø, without cable with sensor plug for sensor cable connection, sensor with thread sleeve M30 x 1.5, 2 flat nuts M30
IS42-30GS	Sensor transmitter 42 mm Ø, without cable with sensor plug for sensor cable connection, sensor with thread sleeve M30 x 1.5, 2 flat nuts M30
IE42-30GS	Sensor receiver 42 mm Ø, without cable with sensor plug for sensor cable connection, sensor with thread sleeve M30 x 1.5, 2 flat nuts M30
ISQ42S	Sensor transmitter in cubical enclosure with 50 mm installation height, mounting M6 without cable, sensor with thread sleeve M30 x 1.5, 2 flat nuts M30
IEQ42S	Sensor receiver in cubical enclosure with 50 mm installation height, mounting M6 without cable with sensor plug for sensor cable connection
ISQ42FS	Sensor transmitter in cubical enclosure with 50 mm installation height, mounting M6 fixed cable 0.2 m with sensor plug for sensor cable connection
IEQ42FS	Sensor receiver in cubical enclosure with 50 mm installation height, mounting M6 fixed cable 0.2 m with sensor plug for sensor cable connection
ISQ160S	Sensor transmitter in cubical enclosure with 36 mm installation height, mounting M4 without cable with sensor plug for sensor cable connection
IEQ160S	Sensor receiver in cubical enclosure with 36 mm installation height, mounting M4 without cable with sensor plug for sensor cable connection

Cable sensor SCI20S-xx:



X = Depende del tipo de cable
(mín. 50 mm en cableado fijo,
mín. 100 mm en cableado flexibles)

Lateral de la unidad
Cable conexión
Vista lateral del conector

1 = + 8 V
2 = - 8 V
3 = GND
4 = Emisor 1
5 = Emisor 2
6 = Receptor 1
7 = Receptor 2

Lateral sensor
Cable enchufe
Vista lateral del conector

Cables:

Order information	Specification	Description
SCI20S-GG	Superflex TRONIC[C]PUR TP 4 x 2 x 0.25 mm²	Cable for connecting the sensors IS / IE20-30GS, IS / IE42-30GS with the I20, both cable ends with quick disconnect, straight cable plug at the unit (GG), resp. angular cable socket (GW) at the sensor side.
SCI20S-GW		
SCI20S-GG-TE		Extension cable for SCI20S-GG and SCI20S-GW, **as well as for sensors ISQ/IEQ42FS**

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